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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,987	08/03/2001	Yaolong Zhu	33726-00017 TX/PSC/D.1727	8444
7590 02/11/2004 JENKENS & GILCHRIST 3200 Fountain Place 1445 Ross Avenue Dallas, TX 75202-2799			EXAMINER CONNOLLY, PATRICK J	
			ART UNIT 2877	PAPER NUMBER

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/922,987

Applicant(s)

ZHU ET AL.

Examiner

Patrick J Connolly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-19 and 21 is/are rejected.
- 7) ☒ Claim(s) 9, 20 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claim 22 is objected to because of the following informalities: Line 1 of claim 22 recites the limitation of a “method of as claimed in claim 12”. It is believed this should read “apparatus of claim 12”, as claim 12 refers to an apparatus and not a method. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2, 6, 10-13, 17 and 21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,502,565 to Fukuzawa et al (hereafter Fukuzawa).

As to claims 1, 2, 12 and 13, Fukuzawa discloses a method and apparatus for determining a slider position including:

directing one or more incident light beams to the interface between the slider and disc
(see Figure 17, elements 4-7);

simultaneously measuring values derived from one or more beams of light reflected from the surface (see Figure 4, elements 61, 62, 63), said simultaneously measured values respectively corresponding with multiple test points on the surface of the slider which are spaced out from each other (see Figures 16a and 16b); and

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calculating the spatial orientation of the slider based on said simultaneously measured values (see for example, Figure 11).

As to claims 6 and 17, Fukuzawa discloses multiple wavelengths (see Figure 6).

As to claims 10 and 21, Fukuzawa discloses independently measuring the simultaneously detected values (see Figure 4, elements 61, 62, 63).

As to claim 11, Fukuzawa discloses determining the minimum flying height of the slider (see Figure 11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuzawa.

As to claims 3-5 and 14-16, Fukuzawa only teaches measuring the slider's spatial orientation with respect to one axis.

Sliders are well known to have three-dimensional freedom in relationship to disks.

It would have been obvious to one of ordinary skill in the art at the time of invention to include multiple points indicative of these axes of freedom in the apparatus and method of Fukuzawa so as to have a more complete representation of the sliders position and orientation with respect to the disk.

Claims 7, 8, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuzawa as applied to claims 3-5 and 14-16 above, and further in view of U.S. Patent No. 5,218,424 to Sommargren.

Sommargren teaches using a beam with two orthogonal vectors of polarization (see bottom of column 2, top of column 3, also Figure 1).

Fukuzawa does not teach using a beam with orthogonally polarized vectors.

As to claims 7 and 18, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the polarized beam of Sommargren with the apparatus and method of Fukuzawa so that the advantage of more sensitive measurements of the flying height could be achieved.

As to claims 8 and 19, both Sommargren and Fukuzawa teach an incident beam at an angle between zero and 80 degrees (see Fukuzawa Figure 17 and Sommargren Figure 1).

Allowable Subject Matter

Claims 9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

-----As to claim 9, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of determining the spatial position of a slider with respect to a disk including: using a series of cascading mirrors having pinholes to isolate reflected light respectively corresponding with each of multiple testing points from one beam of light reflected from the slider-disk interface, in combination with the rest of the limitations of claim 9.

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As to claim 20, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for determining the spatial position of a slider with respect to a disk including: measurement means using a series of cascading mirrors having pinholes to isolate reflected light respectively corresponding with each of multiple testing points from one beam of light reflected from the slider-disk interface, in combination with the rest of the limitations of claim 20.

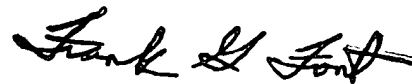
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc p3c



Frank G. Font
Supervisory Patent Examiner
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